ON *ZELUS LEUCOGRAMMUS* (HETEROPTERA, REDUVIIDAE, HARPACTORINAE): EGGS AND NYMPHS

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ABSTRACT

Adult specimens, eggs and instar IV of *Zelus leucogrammus* (Perty) are described. Male and female terminalia are illustrated. New records from Argentina are also given.

KEYWORDS. Description, eggs, instar IV, adult, *Zelus leucogrammus*.

INTRODUCTION

The genus *Zelus* Fabricius, 1834 belongs to the Harpactorinae and it is widely distributed in the American continent, from Canada to Argentina. According to Wygodzinsky (1949), the genus includes 66 species. In the revision made by Hart (1972) he recognized 68 species. Maldonado Capriles (1990) listed a total of 60 species. Species of this genus are insect predators and usually they are found in low trees, grass and crops.

The genus *Zelus* is characterized by the following characters: rostral segment 2: 1.3- 2.2 mm length of segment 1 and 3 about ½ length of 1 and 3 long and slender, 2 and 4 short and slender; pro- and metafemora long and slender, subequal in length and diameter; abdomen unflated, not depressed; pygophore with parameres and undivided medial process; dorsal phallothecal sclerite primitively semicylindrical, struts with recurved fusion, pedicel short (Hart, 1972).

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Zelus leucogrammus was described by PERTY (1834) in the genus *Reduvius* Perty; STAL (1872) transferred it to *Zelus (Diplodus)*. WYGODZINSKY (1949) does not recognized the subgenus. The species has a Neotropical distribution up to Brazil, including Bolivia, Paraguay, Argentina and Uruguay. The identification of this species is based mainly on size of body, color of head, thorax and abdomen, male genitalia and geographic distribution. It became evident that color and pattern, two characteristics used by a number of authors in delimiting species, were highly variable, both within and among most populations (HART, 1972).

The purpose is to describe the eggs and instar IV of *Zelus leucogrammus;* in the adult, the varibility of the color pattern, the female genitalia characters up to now not taken into account.

MATERIAL AND METHODS

Samples of eggs, nymph and adults collected in the field were deposited in the Museo Argentino de Ciencias Naturales "Bernardino Rivadavia" (MACN), Museo de Ciencias Naturales de La Plata (MLP), Argentina and Universidade Federal de Uberlândia (UFU), Brazil.

Terminology used for general morphology and male genitalia followed HART (1972), and for female genitalia COSCARÓN (1994). The measurements and ratios are given in millimetres, according to COSCARÓN (1986). Nymphs were described according to SWADENER & YONKE (1973). Scanning electron micrographs of eggs and nymph were made from specimens mounted on stubs, sputter-coated with a gold palladium alloy and studied with a JEOL T-100 SEM. Geographic distribution was based in specimens examined and bibliography (HART, 1972; MALDONADO CAPRILES, 1990; WYGODZINSKY, 1949).

Zelus leucogrammus (Perty)

(Figs. 1-23)

Reduvius leucogrammus PERTY, 1834: 174. The type material for this species was destroyed during the World War II (HART, 1972).

Zelus (Diplodus) leucogrammus; STAL, 1872: 90.

Zelus leucogrammus; WYGODZINSKY, 1949: 49; HART, 1972: 236-242, pls 20, 21, figs. a-b; MALDONADO CAPRILES, 1990: 328.

Material examined. ARGENTINA. **Catamarca**, 1♀, El Rodeo, 3.III.62, Torres Ferreyra col. (MLP); **Corrientes**, 2♀, 1♂, El Dorado, Maldonado col. (MLP); **Entre Ríos**, 1♀, 1♂, Paraná (MLP); **Misiones**, 1♀, 2♂, Venturi col. (MACN); **Salta**, 1♀, Abra Santa Laura, Biraben col. (MACN); 1♀, Valle Viejo (MLP).

Distribution (fig. 1). Argentina (Corrientes, Misiones, Santa Fe, and the new records Catamarca, Entre Ríos and Salta), Brazil, Bolivia, Paraguay, and Uruguay.

Male (fig. 2). Total length 17.92-18.0. Head (figs. 3-5) pilose, light brown with variable dark brown areas on anteocular and postocular region, in the base of antennae, between ocelli or at the base of neck. Length of the head 2.94-3.09. Prominent eyes, in lateral view not exceeding the superior margin of head. Eyes width 0.72. Interocular space 0.75-0.81. Rostral segment 1 pale brown to brown and pilose, segments 2 and 3 brownish black to black. Antennae: uniformily pilose, showing brown hairs. Rostral length 3.25-4.0. Antennal segment 1 and 2 dark brown, segments 3 and 4 light brown.

Fig. 1. Geographical distribution of *Zelus leucogrammus* (Perty).

Pronotum (figs. 6-8) pale brown to dark brown or with dark brown spots variable in size. Collar, medial sulci and lateral edges of pronotum covered with white exudation. Tubercles of the collar rounded and brownish black. Anterior pronotal lobe completely dark brown or brown with two dark brown spots. Posterior pronotal lobe medially excavate, with two dark brown spines on humeral angles (figs. 6-8). Dark brown hairs covering pronotum. Scutellum generally pale brown, in some specimens dark brown, apex angulated to subangulated.

Legs dark brown and pilose, coxa and trochanter light brown to brownish black. Femora and tibiae brown to dark brown. Tarsi brownish black.

Hemelytra (figs. 9-11) with clavus and corion dark brown or corion with light brown area. Longitudinal veins dark brown. Membrane dark brown and pilose. Abdomen ventrally pilose, light brown or brownish with black irregular spots between segments. Some specimens with wax spots near lateral margins of abdominal segments 2-7. Dorsal surface of abdomen darker than ventral. Urosternites covered with white exudation. Connexival margins with black lines at intersegmental zones.

Male terminalia (figs. 12-15) medial process of pygophore (fig. 12) cylindrical in shape. Parameres (fig. 15) curved with scarse long hairs on apex. Phallus (figs. 13,14).

Female. Total length 19.4-20.48. Length of the head 3.0-3.84. Rostral length 3.5-4.0. Connexival margin more conspicuous than in male.

Female terminalia (figs. 16-18) gonocoxites and gonapophysis VIII (fig. 16) pilose and light brown in color. Gonocoxites IX (fig. 17) with scarse brown hairs on apex. Tergites IX and X (fig. 18) subquadrangular.

Discussion. According to Hart (1972) he considers variability only in size and color of the pronotal lobes, after our study we noticed that there are other characters

Fig. 2. *Zelus leucogrammus* (Perty): male. Scale line: 1 mm.

which offer a great variability as coloration of head (figs. 3-5) and hemelytra (figs. 9-11), characters very important to take into account in order to avoid an erroneous determination. Also the female terminalia, not described up to now, helps to determine this taxa.

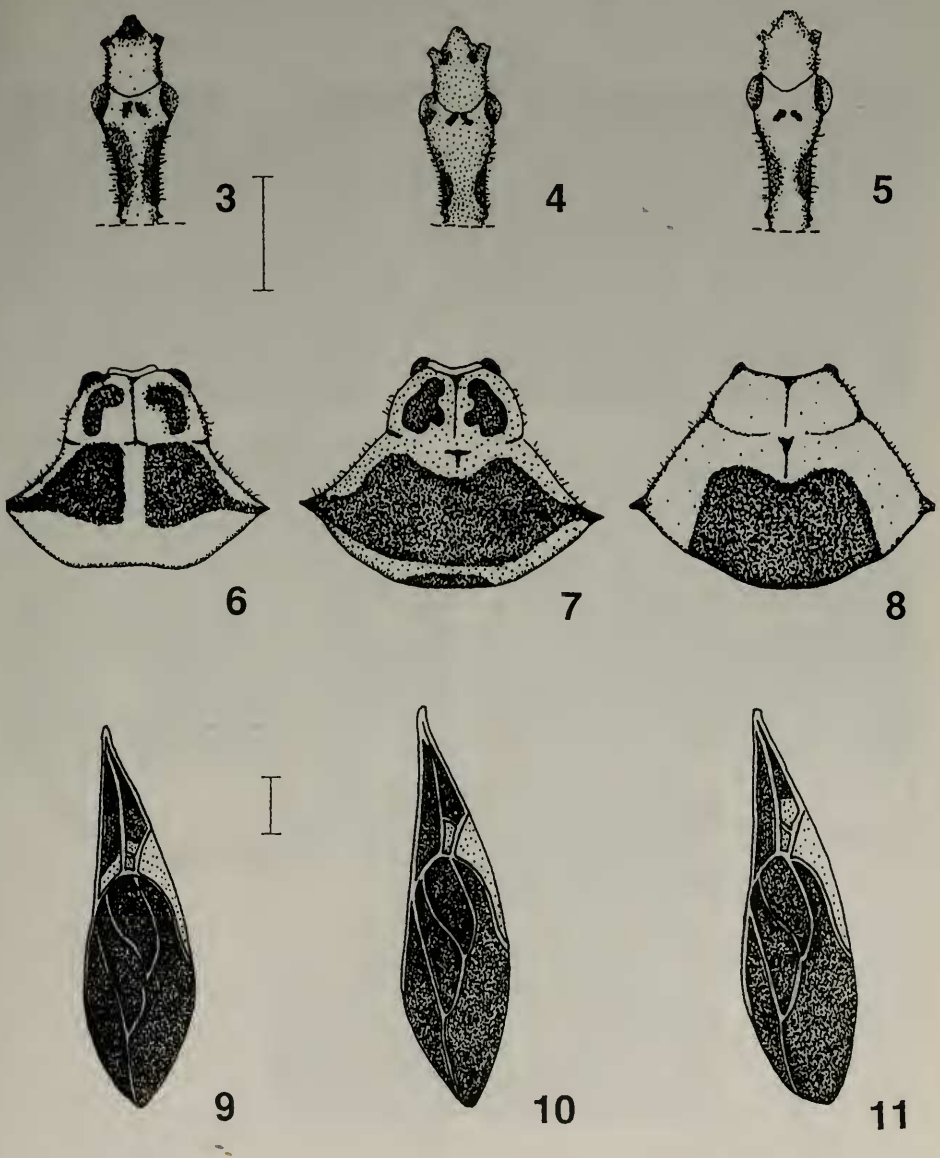
Description of eggs (figs. 19-22). Deposited ova consist in a compact group containing 38 eggs arranged together on the surface of a leave. Dark brown substance (fig. 20, a) is visible in the periphery of the mass sorrounding it. Length of eggs 2.34-2.46, diameter of the operculum 0.4- 0.46. The eggs (figs. 19-22) are dark brown and cylindrical, constricted near the apex. Operculum (fig. 22, b) with reticulated surface. The differenciated portion (figs. 22, c) surrounding the operculum is pale and the ultrastructure is similar to that of the operculum.

Fourth instar (fig. 23). Total length 15.1. Body not elongated, light brown and pilose. Head (fig. 23) pyriform, homogeneous light brown and pilose. Length of head 0.81, width of head 0.25. Prominent eyes (fig. 23), width of eyes 0.19, interocular space 0.7. Postocular region not rounded. Rostral segment 1 and 3 showing light brown color, segment 2 dark brown. Rostral segment 1 pilose, with brown hair. Rostral length 3.2, ratio of length of segments ca. 1: 0.7: 1: 0.7. Antennal length 10.3, ratio of length of segments ca. 1: 2.2: 1.4: 4.1. Segments 3 and 4 lighter than segments 1 and 2.

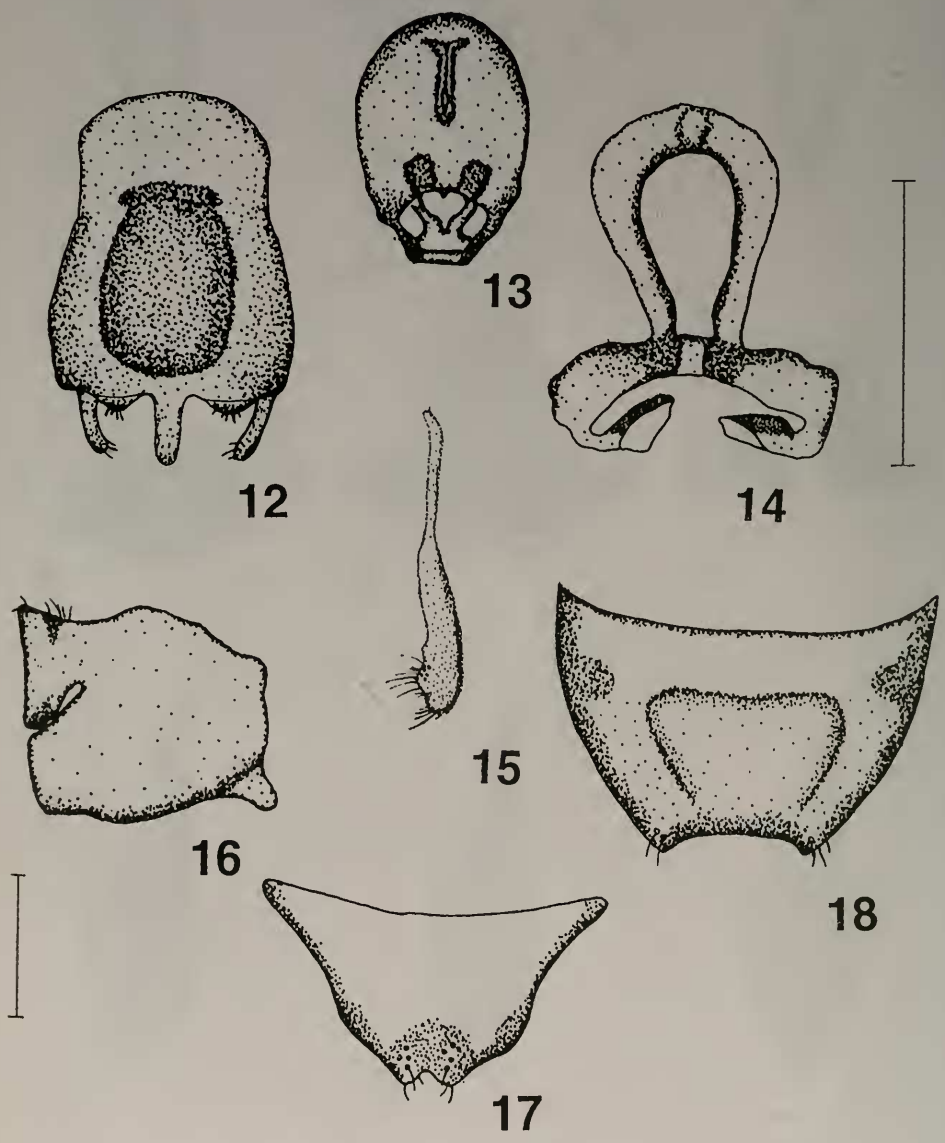
Thorax light brown with granulosities. Pronotum 3.2 long, width of pronotum 3.2. Anterior lobe with two dark brown tubercles. Median sulci evident.

Legs dark brown and pilose. Tibia more densily pilose than femora. Tarsal claws as dark as of leg.

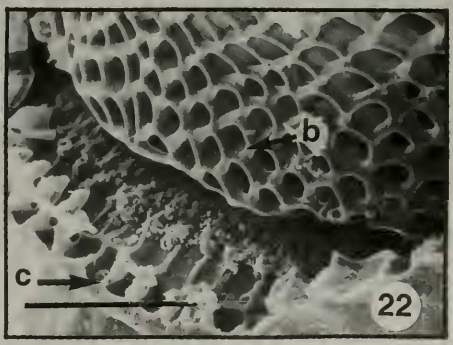
Macropterous, hemelytra with clavus and corion completely dark brown or corion



Figs. 3-11. *Zelus leucogrammus* (Perty): 3-5, head pattern; 6-8, pronotum pattern; 9-11, hemelytra pattern. Scale line: 1,2 mm, figs. 3-8; scale line: 0,6 mm, figs. 9-11.



Figs. 12-18. *Zelus leucogrammus* (Perty): 12, pygophore, dorsal view; 13, 14, phallus; 15, parameres; 16, gonocoxites and gonapophysis VIII; 17, gonocoxites IX; 18, tergites IX and X. Scale line: 2,5 mm, figs. 16-18. Scale line: 5,0 mm, figs. 12-15.



Figs. 19-23. *Zelus leucogrammus* (Perty). Eggs: 19, general aspect; 20, substance surrounding the ova (a); 21, collar; 22, reticulated surface of operculum(b); ultrastructure of collar (c). 23, Instar IV: head, lateral view. Scale line: 35 µm, figs. 19, 20, 23; 200 µm, figs. 21, 22.

with light brown area. Longitudinal veins dark brown. Membrane dark brown and pilose.

Abdomen rounded, light brown. Abdominal length 7.04, abdominal width 3.84. Scent glands opening visible in segments 3-5. Five dark brown papilae present in abdominal margin. Ventral surface of the abdomen more pilose than dorsal surface.

Material examined. ARGENTINA. **Corrientes**, 1 nymph, Coronado, Biraben col. (MACN); **Santa Fe**, 2 nymphs, San Jorge, Caligaris col. (MLP). BRAZIL. **Minas Gerais**, 2 nymphs, Paro col. (UFU).

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